

Appl. No. 10/810,593
Amdt dated March 6, 2006
Reply to Office Action of October 5, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (withdrawn) A method for removing solids from a slurry stream comprising fluids and entrained solids, the method comprising the steps of:
 - i) adding a flocculating agent to agglomerate to said solids so as to form agglomerated solids within said slurry stream;
 - ii) introducing said slurry stream having said agglomerated solids and said fluids therein through an inlet to a vessel having an outlet that is below and substantially co-axial with said inlet;
 - iii) directing said agglomerated solids through a guiding member which guides said agglomerated solids to said outlet;
 - iv) forming and maintaining a substantially conical mass of agglomerated solids substantially co-axial with and over said outlet, thereby upwardly displacing said fluids;
 - v) withdrawing said agglomerated solids from said mass of agglomerated solids via said outlet; and
 - vi) removing said fluids from said vessel from a location remote from said outlet.
2. (withdrawn) The method as claimed in claim 1 further comprising the step of centrifuging said withdrawn agglomerated solids to separate any residual fluids therefrom.
3. (withdrawn) The method as claimed in claim 1 wherein said introducing comprises propelling said agglomerated solids and said fluids.
4. (withdrawn) The method as claimed in claim 3 wherein said agglomerated solids and said fluids are propelled through said inlet by pump pressure.
5. (withdrawn) The method as claimed in claim 1 wherein said directing comprises aiming said slurry stream at said guiding member.
6. (withdrawn) The method as claimed in claim 1 wherein said guiding member comprises a substantially vertical conduit coaxial with and suspended above said outlet.

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7. (withdrawn) The method as claimed in claim 1 wherein removing said fluids is accomplished by means of drainage.

8. (currently amended) An apparatus for removing solids from a slurry stream ~~comprising of~~ fluids and agglomerated solids, the apparatus comprising:

a tank having a peripheral wall and a bottom, an inlet for supplying ~~said the~~ slurry stream to said tank, and an outlet fluidly coupled to said bottom and substantially co-axial with and below said inlet, said outlet for receiving agglomerated slurry solids directly from said inlet;

guiding means substantially co-axial with but positioned above said outlet and between said inlet and said outlet, for guiding to form and maintain a substantially conical mass of agglomerated solids in the slurry stream from said inlet directly to substantially co-axial with and over said outlet; and

fluid removal means for removing ~~said the~~ fluids from said tank from a location remote from said outlet.

9. (original) The apparatus as claimed in claim 8 wherein said bottom is substantially conical with said outlet centrally disposed therein.

10. (currently amended) The apparatus as claimed in claim 8 wherein said ~~means~~-inlet comprises means for propelling said slurry stream through said inlet into said tank.

11. (cancelled)

12. (original) The apparatus as claimed in claim 8 wherein said fluid removal means comprises a drain.

13. (original) The apparatus as claimed in claim 8 wherein said guiding means comprises a baffle assembly suspended in said tank.

14. (original) The apparatus as claimed in claim 13 wherein said baffle assembly is moveable, for adjusting the position of said baffle assembly within said tank.

15. (currently amended) The apparatus as claimed in claim 13 wherein said baffle assembly comprises a plurality of concentric baffle members ~~that partition said tank into a plurality~~

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~~of fluidly coupled chambers~~ for interrupting the flow of slurry fluid from the inlet to the fluid drain to physically flocculate suspended slurry solids.

16. (original) The apparatus as claimed in claim 14 further comprising means for moving said baffle assembly.

17. (currently amended) A system for removing solids from a slurry stream comprising fluids and entrained solids, the system comprising:

agglomeration means for agglomerating ~~said the~~ entrained solids within ~~said the~~ slurry stream;

inlet means for introducing ~~said the~~ slurry stream to a solids concentrating apparatus, said apparatus comprising:

a tank having a peripheral wall, a bottom, and an outlet fluidly coupled to said bottom and substantially co-axial with and below said inlet means, said outlet for receiving the agglomerated solids directly from said inlet;

guiding means substantially co-axial with but positioned above said outlet and between said inlet means and said outlet, said guiding means for guiding the to form and maintain a substantially conical mass of agglomerated solids from said inlet directly to substantially co-axial with and over said outlet; and

drain means for removing ~~said the~~ fluids from said tank;

sensor means for detecting the amount of each of ~~said the~~ agglomerated solids and ~~said the~~ fluids in said tank;

solids removal means fluidly coupled to said outlet, for withdrawing ~~said the~~ agglomerated solids through said outlet; and

separation means fluidly coupled to said solids removal means, for separating residual water from ~~said the~~ agglomerated solids withdrawn through said outlet.

18. (original) The system as claimed in claim 17 further comprising control means, said control means receiving input from said sensor means and regulating volumetric flow of slurry into said tank via said inlet means and/or volumetric flow of fluids out of said tank via said drain means.

19. (original) The system as claimed in claim 17 wherein said agglomeration means comprise flocculant.

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20. (original) The system as claimed in claim 19 further comprising:

flocculant generation means fluidly coupled to said drain means, for mixing removed fluid with flocculating agent to create flocculant; and

flocculant transfer means fluidly coupled to said flocculant generation means at a point upstream of said solids concentrating apparatus, for introducing said flocculant into a conduit carrying said slurry stream to said inlet means.

21. (new) The apparatus according to claim 9 wherein the guiding means comprises a baffle assembly of concentric cylinders suspended in said tank for guiding the agglomerated slurry solids directly to said outlet, for concentrating the slurry solids over the outlet, and for interrupting the flow of slurry fluid from the inlet to the fluid drain to physically flocculate slurry solids that may remain suspended in the slurry fluid.
22. (new) The apparatus according to claim 21 wherein each concentric cylinder further includes an open conical portion extending toward the outlet, thereby defining a series of concentric concentrating chambers that narrow toward the outlet.
23. (new) The apparatus according to claim 22 wherein the conical portion extends substantially to the outlet, thereby defining a minimal gap between the narrowed portion of each concentrating chamber and said tank bottom, the minimal gap for collecting settled solids from each concentrating chamber and compacting said settled solids against said outlet.
24. (new) The apparatus according to claim 23 further comprising means for moving said baffle assembly to adjust the minimal gap.